

Remarks:

Reconsideration of the application is requested. Claims 1-10 remain in the application. Claims 1 and 6 have been amended. Claims 9 and 10 have been added.

In item 1 of the Office action, the Examiner mistakenly objected to the Information Disclosure statement and should have reviewed the prior art that was submitted in a proper IDS in the parent application. MPEP § 609 states, "The examiner will consider information which has been considered by the Office in a parent application when examining ... (C) a continuation-in-part application filed under 37 CFR 1.53(b)."

All of the patents cited in the specification (i.e. US 4,007,296, US 3,267,342, US 3,544,434; FR 2 422 268; EP 0 124 264; and DE 297 12 001.8) were part of an IDS that was mailed as part of the parent on December 21, 2000.

Accordingly, no further CIP was required with this CIP application. In addition, the Examiner should have reviewed this prior art as part of this Office action.

In item 2 of the Office action, the Examiner objected to the drawings for not showing all of the features of the invention specified in the claims. The specific objections are addressed below.

- Capacitor. While the monolithic planar filter overall acts as a capacitor (see specification, p. 5, ll 6-10), the capacitor is not a structure in addition to the planar filter and its components. Accordingly, the term "capacitor" has been deleted from claims 1 and 6. This term has been replaced with "capacitance". The capacitance is an inherent quality of the planar filter and cannot be shown in a drawing.
- Base. The term base has been deleted from claims 1 and 6.
- Insular Region. The signal electrode (3) forms the insular (i.e. island shaped) region; they are the same part and, therefore, both are labeled with reference number 3.
- Monolithic planar filter. The monolithic planar filter is generally marked by reference number 10. See specification, page 11, lines 6-7.

In item 4 of the of the Office action, the Examiner objected to the specification because the specification did not reference the following claimed features: the monolithic planar filter, capacitor, insular region, and base. For the

reasons discussed in the previous bulleted list, the specification is sufficient to meet the claims.

In item 5 of the Office action, the Examiner objected to claims 1-8, because claims 1 and 6 recited the feature "having ground electrode to planarity." Claims 1 and 6 have been amended. These phrases now read "said side surface assigned to said ground electrode being lapped to planarity." Support for the change can be found in the specification at page 7, lines 14-20.

In item 7 of the above-identified Office action, the Examiner has rejected claims 1-8 as containing subject matter that was not subscribed in such a way as to reasonably convey to one skilled in the relevant art that that inventors had possession of the claimed invention, under 35 U.S.C. § 112, first paragraph. More specifically, the Examiner has stated that following terms were not described in the specification or drawings: monolithic planar filter, capacitor, insular region, and base. As discussed previously in the bulleted list, the claims have been amended so that these terms are either deleted or explained.

In item 8 of the Office action, the Examiner rejected claims 6-8 under 35 U.S.C. § 112, first paragraph. Claim 6 has been amended. Amended claim 6 clarifies that, "said side surface

assigned to said ground electrode [is] lapped to planarity." The amended claim emphasizes that the side surface is planed; how it is planed is not relevant to the invention. The amended claim also clarifies that the side surface is not be planed by itself.

In item 10 of the Office action, the Examiner rejected claims 1-8, as being indefinite under 35 U.S.C. § 112, second paragraph. More specifically, the Examiner rejected the phrase, "The side surface having said ground electrode," as lacking antecedent basis. Claims 1 and 8 have been amended to place this phrase later in the claims, where it has sufficient antecedent basis.

In item 11 of the Office action, the Examiner claims 1-5 under 35 U.S.C. § 112, second paragraph as being incomplete for omitting essential structural cooperative relationships of elements. For support, the Examiner cited MPEP § 2172.01. However, MPEP § 2172.02 is a subsection of MPEP § 2172, which states the following:

A rejection based on the failure to satisfy this requirement is appropriate only where applicant has stated, somewhere other than in the application as filed, that the invention is something different from what is defined by the claims. In other words, the invention set forth in the claims must be presumed, in the absence of evidence to the contrary, to be that which applicants regard as their invention. In re Moore, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).

The Examiner never cited any contrary evidence that the claims were incorrect as required by MPEP § 2172. Therefore, the rejection fails to meet the standard of the statute as interpreted by the court and the MPEP.

In addition, the Examiner has confused broadness of claims versus indefiniteness. For a discussion of this topic, see MPEP 2173.04. The claims are intended not to limit which part of the planar filter is being directly connected. In fact, the specification describes several possibilities; see specification, page 13, ll 7 and 9-22 and p. 13, ll 13-28. Accordingly, although claims 1-5 are broad, they are still definite.

In item 12 of the Office action, the Examiner rejected claim 6 as being indefinite. In particular, the Examiner rejected the phrase, "Ground to lap at least the side surface assigned having the ground electrode to planarity." As previously stated, this phrase has been amended and clarified.

Accordingly, the specification and the claims meet the requirements of 35 U.S.C. § 112, first and second paragraphs. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the

claim for any reason related to the statutory requirements for a patent.

In item 13 of the Office action, the Examiner rejected claims 1-2 and 4-8 as being fully anticipated by Plass under 35 U.S.C. § 102(b). As will be explained below, the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, a brief review of the invention as claimed is provided. Claim 1 calls for, *inter alia*, a filter configuration for a multi-pole plug-in connector having a signal pin to be connected, comprising:

a monolithic planar filter having a capacitance,  
said monolithic planar filter having:

a signal electrode for connecting to the signal pin,

a ground electrode for connecting to a ground,  
and

a dielectric layer formed of a ceramic material and having two side surfaces, an edge, and a pin lead-through formed therein for receiving the signal pin, said dielectric layer being block shaped, perforated, and subsequently sintered,

said ground electrode being applied to and entirely areally covering one of said side surfaces of said dielectric layer apart from said pin lead-through and a lead-through clearance,

said side surface assigned to said ground electrode being lapped to planarity, and

said signal electrode being applied to the other of said side surfaces, extending from said pin lead-through, and forming an insular region extending substantially from said signal pin toward said edge of said dielectric layer; and

a supporting plate having a finely ground and lapped face attached directly and closely to said planar filter;

said supporting plate being formed as a printed-circuit-board dielectric plate with a dielectric constant lower than said dielectric layer and having a supporting-plate pin lead-through corresponding to the pin lead-through;

said supporting-plate pin lead-through having a diameter sufficiently wider than the signal pin to draw solder via capillary action into said pin lead-through;

solder drawn into said pin lead-through and fixing said planar filter to the signal pin, fixing said supporting plate to the signal pin, fixing said planar filter to said supporting plate, and connecting said insular regions of said signal electrode with the signal pin.

Plass pertains to a filter plug connector in which a planar support plate has a plurality of lead-throughs disposed in rows and columns for receiving signal conductors. According to Plass, the signal electrodes are applied immediately on the "support layer" for the formation of the planar filter. The signal electrodes are then covered with a dielectric layer as a "green layer". The ground electrode is applied on the green layer. Afterwards, the entire configuration must be baked to rigidly connect the layers to each other. This means that

only the final product can be checked for error and quality.  
A plastic protective covering is provided for absorbing shock.

The instant application pertains to angle plug connectors with a planar filter with a plurality of trough openings (see claim 4) for receiving the signal conductors, which are typically in rows and columns. The signal conductors are to be protected against mechanical stresses.

According to the invention, the planar filter is initially finished with a signal electrode, a ground electrode, and a dielectric. These components can be checked before assembly. After the planar filter is assembled, the planar filter is connected with the mechanically stable protective layer by solder connections to the signal conductors that are led therethrough. The planar filter is disposed flat against the support plate (i.e. "directly and closely"). This protects the planar filter against mechanical stresses, but without a flat connection between the two.

Minimizing mechanical stresses is particularly important for angle plug connectors. However, if a shear force is generated on each signal conductor during plugging-in, the shear force is transmitted to the planar filter as a force from the signal conductors. By doing so, the planar filter can become bent or wound. Furthermore, in planar filters with modern

dielectrics, which have higher dielectric constants and are thus thinner, the modern dielectrics are much more susceptible to bending stresses. Planar filters with these modern dielectrics break after only minor bends and distortions. In order to prevent the bends and distortions, the invention utilizes a supporting plate that is attached directly and closely to the planar filter.

In order to ensure the flat location, the support plates are fine-ground and lapped. This produces flat, parallel sides; see especially claims 9-10. Finally, the lead though signal conductors are soldered in the lead throughs of the planar filter as well as on the support plate, whereby the parallelism of the two large surfaces is significant.

In contrast to Plass, the object of the invention of the instant application is to produce a finished planar filter with signal electrodes, a ground electrode, and a (sensitive) layer of dielectric therebetween. This planar filter is produced initially and can be checked before assembly. The support plate has openings that are aligned with the lead-through opening of the planar filter. The planar filter is assembled with the finished planar filter only thereafter, whereby they both fit together in a flat manner. Again, this is why the flatness of the surfaces is so significant. The connection between the planar filter and the support plate

occurs by soldering the signal conductor lead throughs, whereby the solder is sucked by capillary action throughout the gap between the respective signal conductors and the wall for the corresponding lead-through opening as a molten metal due to capillary forces.

In Plass, the planar filter is formed on the support layer. It is provided with the signal electrodes, on which the dielectric is applied and on which the ground electrode is then applied. Finally, this configuration is baked. The support plate dielectric is connected in a flat manner. The signal conductors are soldered only with the corresponding signal electrodes. A solder that spreads to the lead throughs of the signal conductor through the support plate is not taught.

Accordingly, none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 or 6. Therefore, claims 1 and 6 are patentable over the art. Moreover, because all of the dependent claims are ultimately dependent on claim 1 or 6, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-10 are solicited. In the event the Examiner should still find any of the claims to be unpatentable, please

telephone counsel so that patentable language can be substituted.

Petition for extension is herewith made. The extension fee for response within a period of one month pursuant to Section 1.136(a) for a small entity in the amount of \$55 in accordance with Section 1.17 is enclosed herewith.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

  
For Applicants

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LDP:cgm

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Version with Markings to Show Changes Made:In the Claims:

Claim 1 (amended). A filter configuration for a multi-pole plug-in connector having a signal pin to be connected, comprising:

a monolithic planar filter having a [capacitor, said capacitor] capacitance, said monolithic planar filter having:

a signal electrode for connecting to the signal pin,

a ground electrode for connecting to a ground, and

a dielectric layer formed of a ceramic material [on a base] and having two side surfaces, an edge, and a pin lead-through formed therein for receiving the signal pin, said dielectric layer being block shaped, perforated, and subsequently sintered, [and ground by lapping at least the side surface having said ground electrode to planarity,]

said ground electrode being applied to and entirely areally covering one of said side surfaces of said dielectric layer apart from said pin lead-through and a lead-through clearance,

said side surface assigned to said ground electrode being lapped to planarity, and

said signal electrode being applied to the other of said side surfaces, extending from said pin lead-through, and forming an insular [regions] region extending substantially from said signal [pins] pin toward said edge of said dielectric layer; and

a supporting plate having a finely ground and lapped face attached directly and closely to said planar filter;

said supporting plate being formed as a printed-circuit-board dielectric plate with a dielectric constant lower than said dielectric layer and having a supporting-plate pin lead-through corresponding to the pin lead-through;

said supporting-plate pin lead-through having a diameter sufficiently wider than the signal pin to draw solder via capillary action into said pin lead-through;

solder drawn into said pin lead-through and [to fix] fixing said planar filter to the signal pin, [to fix] fixing said supporting plate to the signal pin, [to fix the] fixing said planar filter to said supporting plate, and [to connect]

connecting said insular regions of said signal electrode with the signal pin.

Claim 6 (amended). A multi-pole angle-connecting device, comprising:

a signal pin having one end to be soldered to a soldering joint and another end having a connector;

a monolithic planar filter having a [capacitor, said capacitor] capacitance, said monolithic planar filter having:

a signal electrode connected to the signal pin,

a ground electrode for connecting to a ground, and

a dielectric layer formed of a ceramic material [on a base] and having two side surfaces, an edge, and a pin lead-throughs formed therein receiving the signal pin and being block shaped, perforated, and subsequently sintered, [and ground to lap at least the side surface assigned having the ground electrode to planarity,]

said ground electrode being applied to and entirely areally covering one of said side surfaces of said

dielectric layer apart from said pin lead-throughs and a lead-through clearance,

said side surface assigned to said ground electrode being lapped to planarity, and

said signal electrode being applied to the other of said side surfaces, extending from said pin lead-through, and forming an insular [regions] region extending substantially from said signal [pins] pin toward said edge of said dielectric layer; and

a supporting plate having a finely ground and lapped face attached directly and closely to said planar filter;

said supporting plate being formed as a printed-circuit-board dielectric plate with a dielectric constant lower than said dielectric layer and having a pin lead-through corresponding to the pin lead-through;

solder in said pin lead-throughs fixing said planar filter to said filter pin, fixing said supporting plate to said filter pin, fixing said planar filter to said supporting plate, and [to connect] connecting said insular regions of said signal electrodes to said signal pin.

Add the following Claims:

--9. The filter configuration according to claim 1, wherein said support plate has two opposing sides, said sides being fine-ground and lapped to be flat and parallel to each other.-

--10. The multi-pole angle-connecting device according to claim 6, wherein said support plate has two opposing sides, said sides being fine-ground and lapped to be flat and parallel to each other.--

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